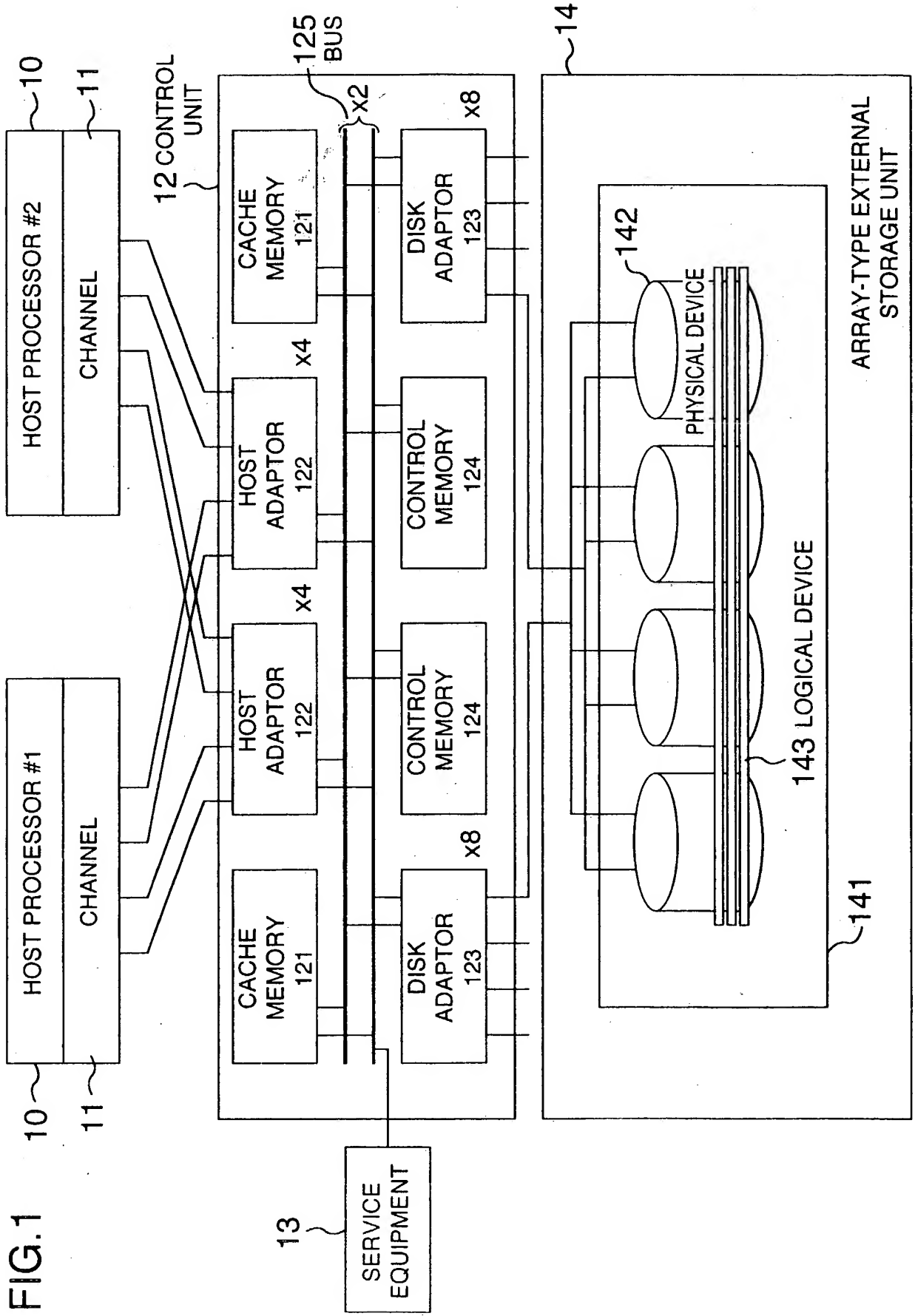

HOST PROCESSOR #2
HOST PROCESSOR #1
CHANNEL
CHANNEL
10
11
10
11
12 CONTROL UNIT
125 BUS
x2
CACHE MEMORY 121
CACHE MEMORY 121
HOST ADAPTOR 122
HOST ADAPTOR 122
x4
x4
DISK ADAPTOR 123
DISK ADAPTOR 123
x8
x8
CONTROL MEMORY 124
CONTROL MEMORY 124
14
142
PHYSICAL DEVICE
143 LOGICAL DEVICE
141
ARRAY-TYPE EXTERNAL STORAGE UNIT
13
SERVICE EQUIPMENT

FIG. 1

FIG.2

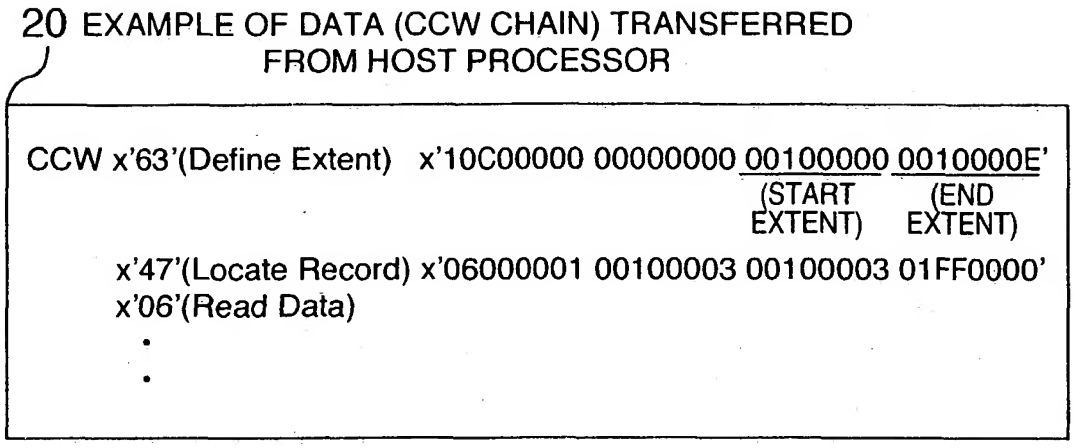

20 EXAMPLE OF DATA (CCW CHAIN) TRANSFERRED FROM HOST PROCESSOR
CCW x'63'(Define Extent) x'10C00000 00000000 00100000 0010000E'
(START EXTENT)
(END EXTENT)
x'47'(Locate Record) x'06000001 00100003 00100003 01FF0000'
x'06'(Read Data)

FIG.4

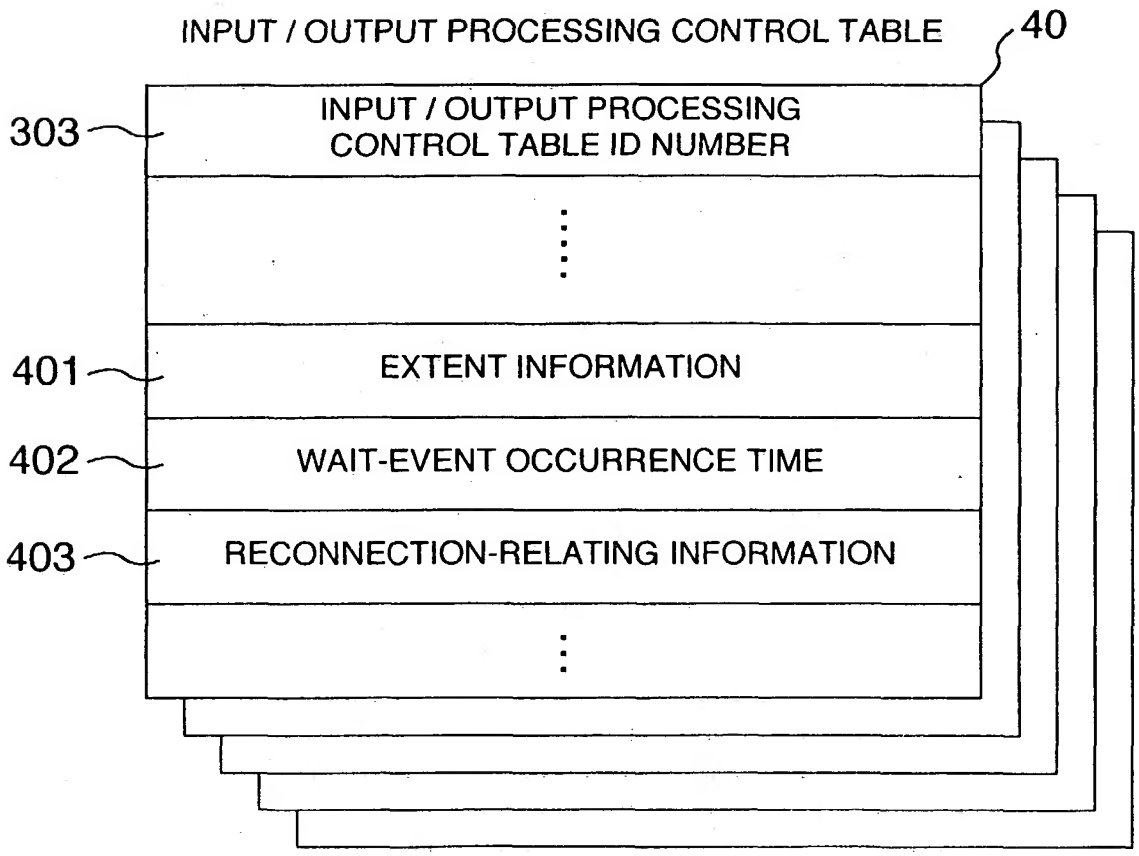

INPUT / OUTPUT PROCESSING CONTROL TABLE
40
303
INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER
401
EXTENT INFORMATION
402
WAIT-EVENT OCCURRENCE TIME
403
RECONNECTION-RELATING INFORMATION

FIG.3

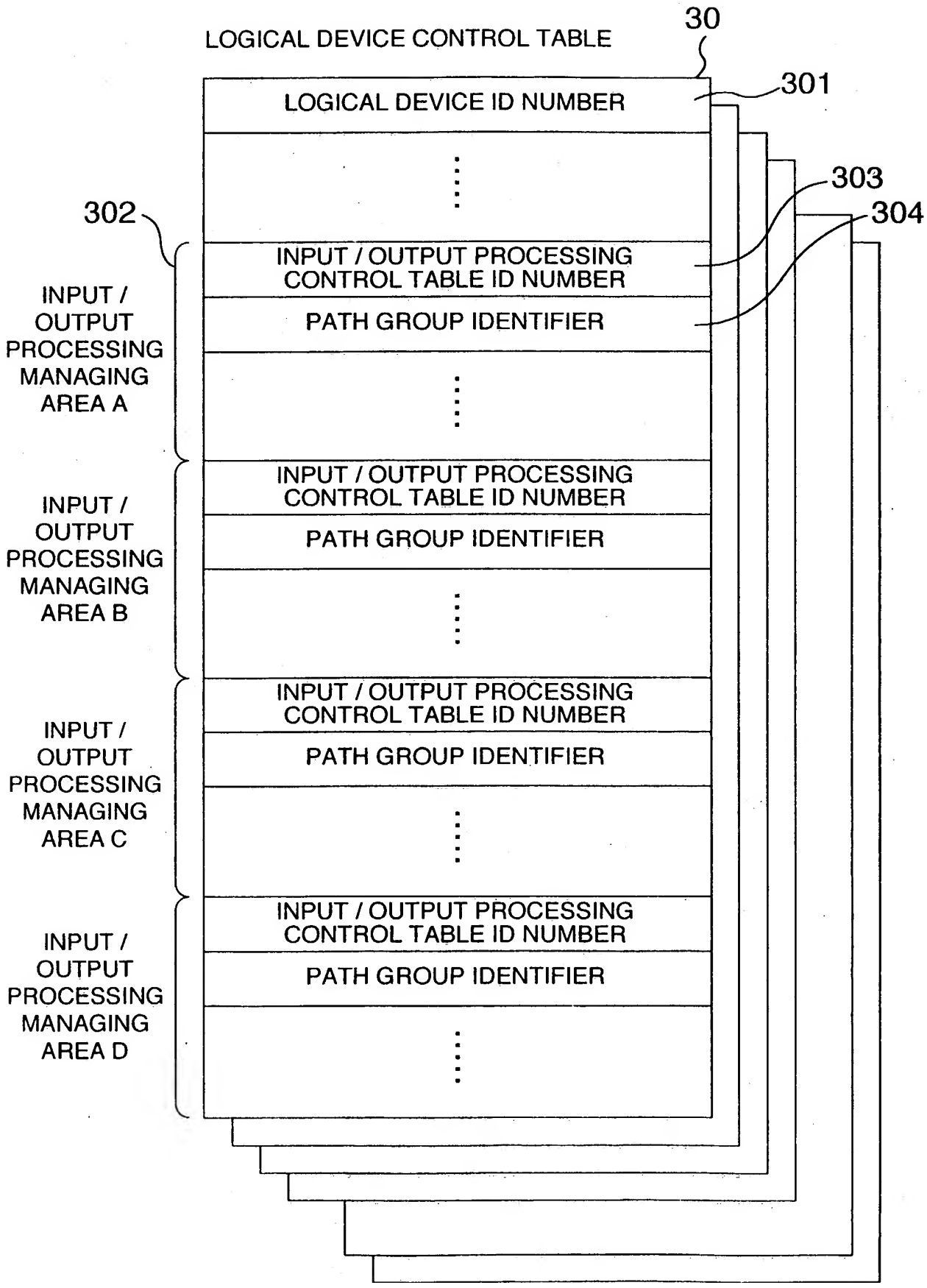

LOGICAL DEVICE CONTROL TABLE
30
LOGICAL DEVICE ID NUMBER
301
303
304
302
INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER
PATH GROUP IDENTIFIER
INPUT / OUTPUT PROCESSING MANAGING AREA A
INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER
PATH GROUP IDENTIFIER
INPUT / OUTPUT PROCESSING MANAGING AREA B
INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER
PATH GROUP IDENTIFIER
INPUT / OUTPUT PROCESSING MANAGING AREA C
INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER
PATH GROUP IDENTIFIER
INPUT / OUTPUT PROCESSING MANAGING AREA D

FIG.5

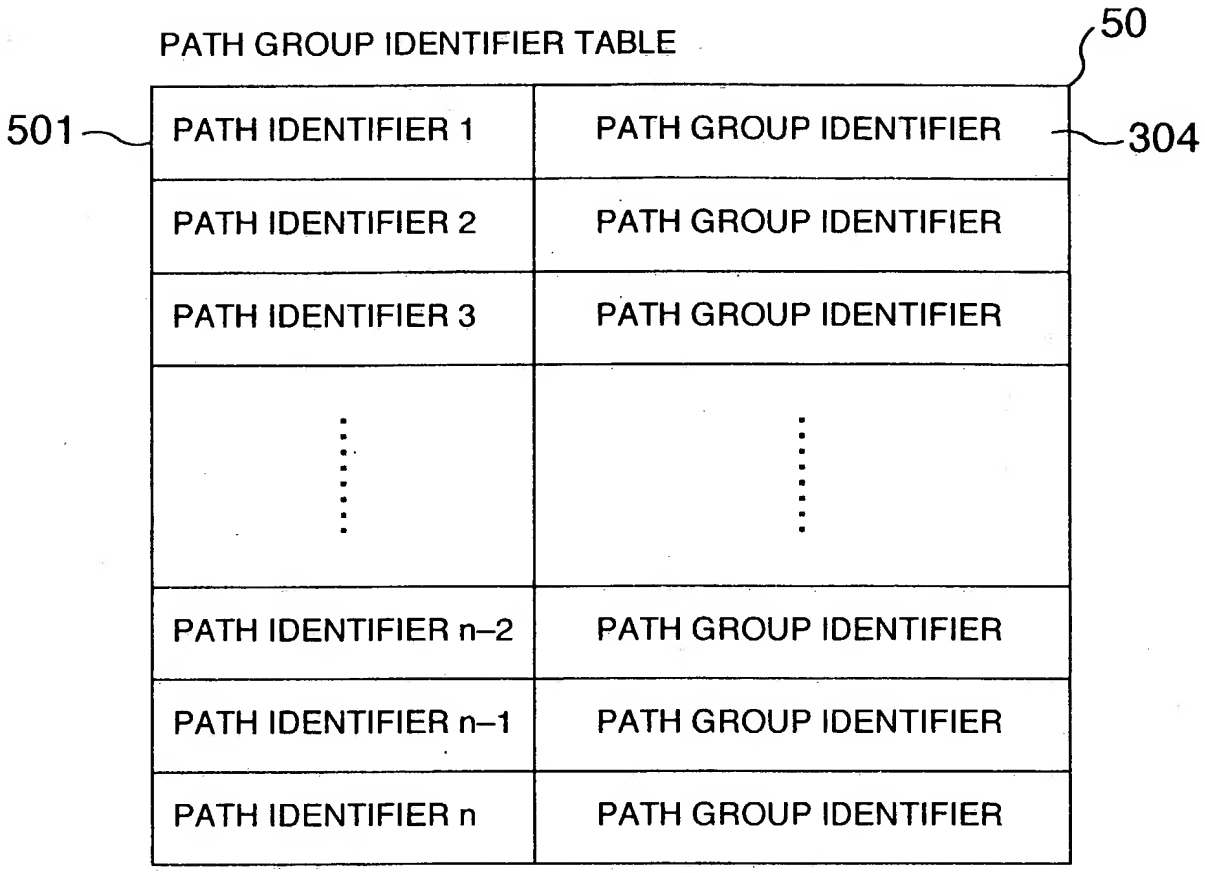

PATH GROUP IDENTIFIER TABLE
50
501
PATH IDENTIFIER 1
PATH GROUP IDENTIFIER
304
PATH IDENTIFIER 2
PATH GROUP IDENTIFIER
PATH IDENTIFIER 3
PATH GROUP IDENTIFIER
PATH IDENTIFIER n–2
PATH GROUP IDENTIFIER
PATH IDENTIFIER n–1
PATH GROUP IDENTIFIER
PATH IDENTIFIER n
PATH GROUP IDENTIFIER

FIG.6

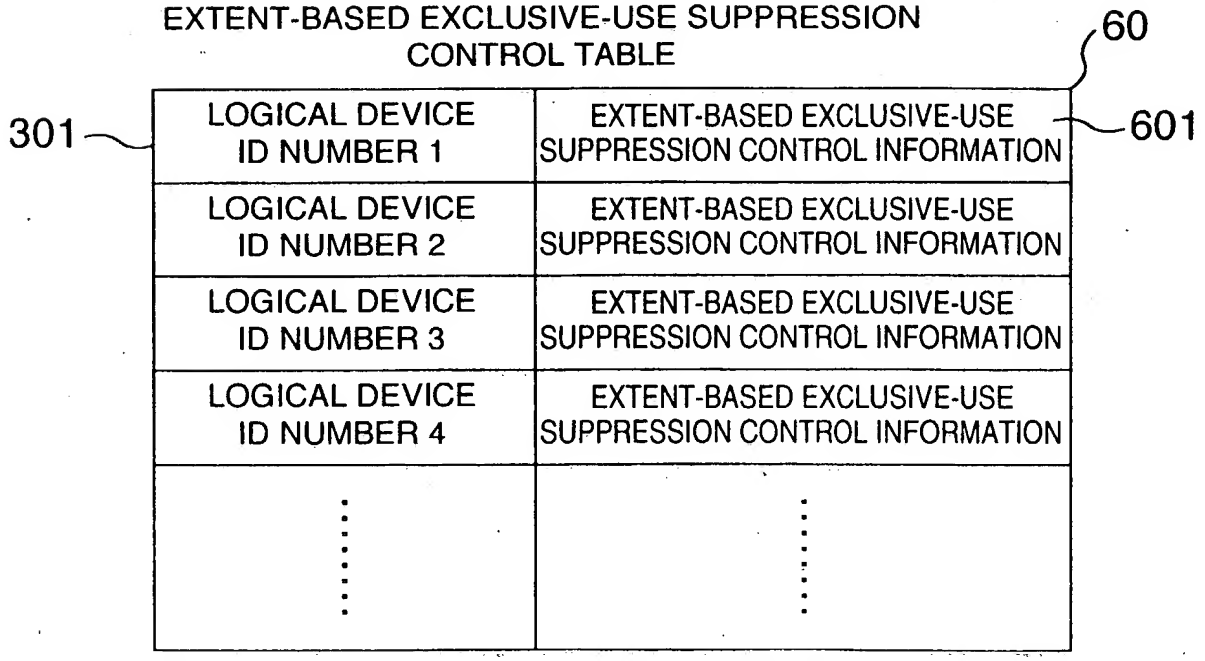

EXTENT-BASED EXCLUSIVE-USE SUPPRESSION CONTROL TABLE
60
301
LOGICAL DEVICE ID NUMBER 1
EXTENT-BASED EXCLUSIVE-USE SUPPRESSION CONTROL INFORMATION
601
LOGICAL DEVICE ID NUMBER 2
EXTENT-BASED EXCLUSIVE-USE SUPPRESSION CONTROL INFORMATION
LOGICAL DEVICE ID NUMBER 3
EXTENT-BASED EXCLUSIVE-USE SUPPRESSION CONTROL INFORMATION
LOGICAL DEVICE ID NUMBER 4
EXTENT-BASED EXCLUSIVE-USE SUPPRESSION CONTROL INFORMATION

FIG.7

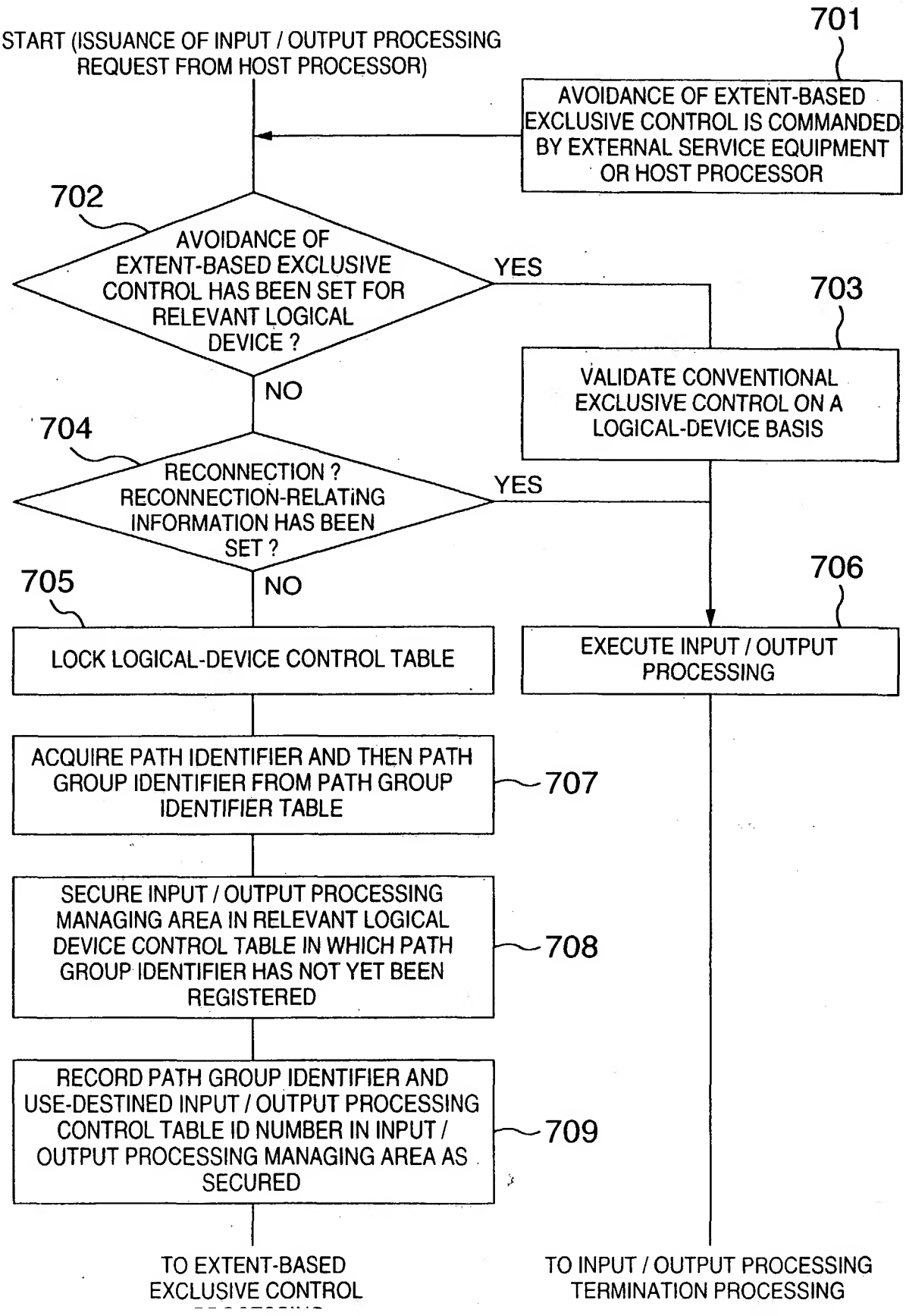

START (ISSUANCE OF INPUT / OUTPUT PROCESSING REQUEST FROM HOST PROCESSOR)
701
AVOIDANCE OF EXTENT-BASED EXCLUSIVE CONTROL IS COMMANDED BY EXTERNAL SERVICE EQUIPMENT OR HOST PROCESSOR
702
AVOIDANCE OF EXTENT-BASED EXCLUSIVE CONTROL HAS BEEN SET FOR RELEVANT LOGICAL DEVICE ?
YES
703
VALIDATE CONVENTIONAL EXCLUSIVE CONTROL ON A LOGICAL-DEVICE BASIS
NO
704
RECONNECTION ? RECONNECTION-RELATING INFORMATION HAS BEEN SET ?
YES
705
NO
706
LOCK LOGICAL-DEVICE CONTROL TABLE
EXECUTE INPUT / OUTPUT PROCESSING
ACQUIRE PATH IDENTIFIER AND THEN PATH GROUP IDENTIFIER FROM PATH GROUP IDENTIFIER TABLE
707
SECURE INPUT / OUTPUT PROCESSING MANAGING AREA IN RELEVANT LOGICAL DEVICE CONTROL TABLE IN WHICH PATH GROUP IDENTIFIER HAS NOT YET BEEN REGISTERED
708
RECORD PATH GROUP IDENTIFIER AND USE-DESTINED INPUT / OUTPUT PROCESSING CONTROL TABLE ID NUMBER IN INPUT / OUTPUT PROCESSING MANAGING AREA AS SECURED
709
TO EXTENT-BASED EXCLUSIVE CONTROL
TO INPUT / OUTPUT PROCESSING TERMINATION PROCESSING

FIG.8

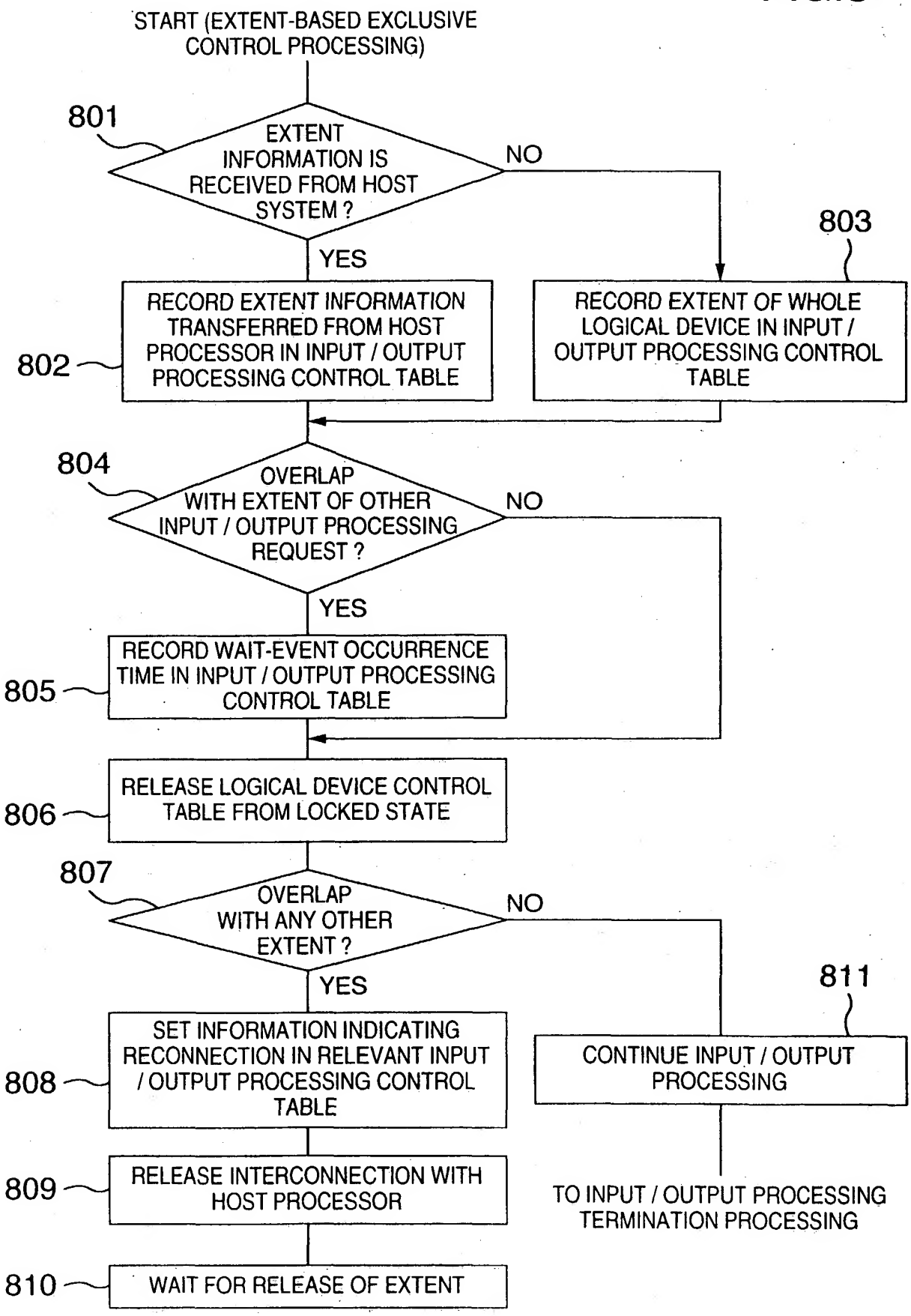
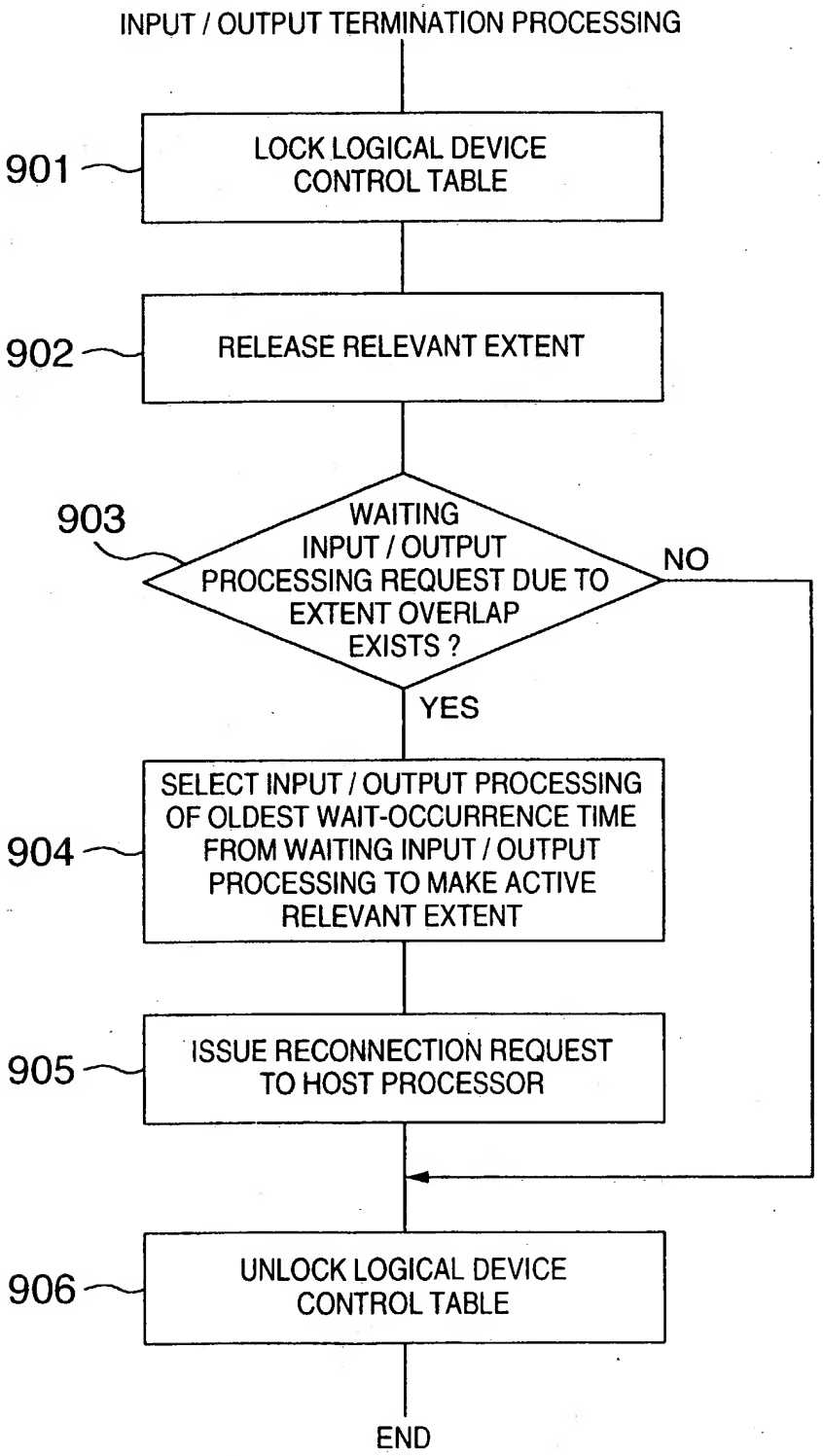

START (EXTENT-BASED EXCLUSIVE CONTROL PROCESSING)
801
EXTENT INFORMATION IS RECEIVED FROM HOST SYSTEM ?
NO
YES
803
RECORD EXTENT OF WHOLE LOGICAL DEVICE IN INPUT / OUTPUT PROCESSING CONTROL TABLE
802
RECORD EXTENT INFORMATION TRANSFERRED FROM HOST PROCESSOR IN INPUT / OUTPUT PROCESSING CONTROL TABLE
804
OVERLAP WITH EXTENT OF OTHER INPUT / OUTPUT PROCESSING REQUEST ?
NO
YES
805
RECORD WAIT-EVENT OCCURRENCE TIME IN INPUT / OUTPUT PROCESSING CONTROL TABLE
806
RELEASE LOGICAL DEVICE CONTROL TABLE FROM LOCKED STATE
807
OVERLAP WITH ANY OTHER EXTENT ?
NO
YES
811
CONTINUE INPUT / OUTPUT PROCESSING
808
SET INFORMATION INDICATING RECONNECTION IN RELEVANT INPUT / OUTPUT PROCESSING CONTROL TABLE
809
RELEASE INTERCONNECTION WITH HOST PROCESSOR
TO INPUT / OUTPUT PROCESSING TERMINATION PROCESSING
810
WAIT FOR RELEASE OF EXTENT

FIG.9


INPUT / OUTPUT TERMINATION PROCESSING
901
LOCK LOGICAL DEVICE CONTROL TABLE
902
RELEASE RELEVANT EXTENT
903
WAITING INPUT / OUTPUT PROCESSING REQUEST DUE TO EXTENT OVERLAP EXISTS ?
NO
YES
904
SELECT INPUT / OUTPUT PROCESSING OF OLDEST WAIT-OCCURRENCE TIME FROM WAITING INPUT / OUTPUT PROCESSING TO MAKE ACTIVE RELEVANT EXTENT
905
ISSUE RECONNECTION REQUEST TO HOST PROCESSOR
906
UNLOCK LOGICAL DEVICE CONTROL TABLE
END